ANNUAL REPORT_2015-6

DEPARTMENT OF MINING AND GEOLOGICAL ENGINEERING
FACULTY OF TECHNOLOGY

Students Visiting Aurora Gold Mine, April 2015

Our *Mission* - *to provide qualified professionals for employment in the mining, mineral exploration and petroleum industries of Guyana through quality courses leading to a Bachelor of Engineering Degree in Applied and Exploration Geology from University of Guyana.*

ADMINISTRATOR FOR MINING AND GEOLOGICAL ENGINEERING

Dr. Andrew Chater Ph.D.,P.Geo.
Senior Lecturer and Head of Department

NOTABLE VISITORS TO MINING AND GEOLOGICAL ENGINEERING

David Puls, Venture Operations Manager for ExxonMobil in Guyana to talk on oil and gas in the Guyana-Suriname Basin

George Buzan, Marine Geophysical Expert for CGG in Huston, Texas to talk on the acquisition of seismic data for oil exploration offshore Guyana

STAFF AT DEPARTMENT OF MINING AND GEOLOGICAL ENGINEERING

Full-Time Staff – all at Turkeyen Campus

Dr. Andrew Chater PhD,P.Geo. – Senior Lecturer
Mr. Sherwood Lowe M.Sc,Dip Ed (Post Graduate) – Lecturer II
*Mr. Evan Persaud MSc. – Lecturer II**
** Administrative Leave since 12th April, 2016*

Students Visiting Karouni Gold Mine, April 2016

Part-Time Staff – all at Turkeyen Campus

Mr. Lennox Tucker BSc

Mr. Emmet Alves MSc (Mining Engineering)

Newly Appointed Full-Time Staff – all at Turkeyen Campus

Dr. Andrew Chater Ph.D.,P.Geo., 1st September, 2015

Public and Professional Service

Dr. Andrew Chater, Senior Lecturer

Member, Convention Planning Committee for PDAC, Canada

Member, Securities Committee for PDAC, Canada

Faculty Representative, AAPG Student Chapter, Guyana

Mr. Sherwood Lowe B.Sc.,M.Sc.

Member, University of Guyana Appointments Committee

Mr. Evan Persaud B.Sc.,M.Sc

Member, Indian Arrival Committee, Georgetown

Member, Board of Directors, National Archives of Guyana

Mr. Emmet Alves B.Eng

Member, Bauxite Century Committee, Linden

Publications

None

Training Workshops Conducted

None

Major Research Projects Completed

None

Academic Programmes Offered

New programs were introduced at the beginning of the academic year. The Diploma in Technology for Geological Engineering students was replaced by an Associate of Science in Applied and Exploration Geology. This new program provides greater emphasis on studies for the search and the evaluation of mineral deposits. Both programs constitute the first and second years of study for all Geological Engineering students.

Successful graduation from the Associate of Science program, or its predecessor the Diploma in Technology program, leads to entry into the Department's program for Bachelor of Engineering in Applied and Exploration Geology. This program is the third and fourth year of study for Geological Engineering students.

The courses offered in 2015-6 were:

Courses and Lecture Staff Compilation

Course Code	Course Name	Hrs/Wk	Cred-Its	Lecturer	Status
Year 1 - Associate of Science (Applied and Exploration Geology)					
GEM 1101	General Geology I	4	4	Evan Persaud	Full-time
GEM 1102	Mineralogy	3	3	Evan Persaud	"
GEM 1102L	Mineralogy Lab	3	1	Andrew Chater	Full-time
GEM 1201	General Geology II*	4	4	Evan Persaud	"
GEM 1205	Igneous and Metamorphic Petrology*	3	3	Evan Persaud	"
GEM 1205L	Petrology Lab I	4	1	Andrew Chater	Full-time

Note: * Denotes unfinished courses that were repeated in June, July and August 2016 below

Year 2 - Associate of Science (Applied and Exploration Geology)					
GEM 2101	Engineering Geology	3	3	Sherwood Lowe	Full-time
GEM 2101L	Engineering Geology Lab	3	1	Sherwood Lowe	"
MIN 2102	Surface Mining I	4	4	Emmet Alves	Part-time
GEM 2105	Sedimentary Petrology and Stratigraphy	3	3	Evan Persaud	Full-time

GEM 2105L	Sedimentary Petrology and Stratigraphy Lab	3	1	Andrew Chater	Full-time
GEM 2106	Geological Map Interpretation	4	4	Sherwood Lowe	Full-time
GEM 2108	Structural Geology	3	3	Sherwood Lowe	“
GEM 2108L	Structural Geology Lab	3	1	Sherwood Lowe	“
GEM 2201	Geological Mapping	3	3	Sherwood Lowe	“
GEM 2201L	Geological Mapping Lab	3	1	Sherwood Lowe	“
GEM 2205	Economic Geology	4	4	Sherwood Lowe	“
GEM 2208	Environmental Geology	4	4	Sherwood Lowe	“

Year 1 - Bachelor of Engineering(Applied and Exploration Geology)

GEM 3106	Applied Geochemistry	4	4	Sherwood Lowe	Full-time
MIN 2105	Mineral Processing	4	4	Lennox Tucker	Part-time
MIN 2202	Surface Mining II	4	4	Emmet Alves	Part-time
GEM 3205	Mineral Resources Utilization	4	4	Andrew Chater	Full-time
GEM 3206	Applied Geophysics	4	4	Andrew Chater	“

Year 2 - Bachelor of Engineering(Applied and Exploration Geology)

GEM 4102	Petroleum Geology	4	4	Andrew Chater	“
GEM 4106	Mineral Exploration Design	4	4	Andrew Chater	“
GEM 4001	Final Year Project	N/A	6	Chater and Lowe	“

***Repeated - Associate of Science (Applied and Exploration Geology)**

GEM 1201	General Geology II	4	4	Sherwood Lowe	Full-time
GEM 1205	Igneous and Metamorphic Petrology	3	3	Andrew Chater	Full-time

Students Visiting Bauxite Loading Facility at Linden, May 2016

Student Prizes Awarded at 2015 Convocation Exercise

None

Major Student Activities (1) – Final Year Projects

The Final Year Project is the most important of all the learning activities that students undertake to complete their university studies and graduate with a Bachelor of Engineering Degree in Applied and Exploration Geology.

The following students' projects will be assessed for graduation in 2016:

Christopher Blackman – A Proposed Cost-Effective Drilling and Blasting Design to Achieve Required Fragmentation at Rory's Knoll Open Pit Mine, Aurora Gold Mine (AGM), Guyana
Larissa Farnum – Geological and Geochemical Gold Exploration at SE Quartz Hill - Omai Goldfields, Guyana
Jermaine Mcpherson – An Investigation of Mineralized Structures in the Marupa Pit, Aurora, by Geological Mapping and Rock Sampling
Pricilla Moore – A Geological Exploration for Gold on a Semi-Regional Scale Aimed at Determining a Preliminary Resource Potential in the Area of Tiger River Drainage including the 9-Mile Properties, Potaro Siparuni, Guyana

Travis October – Design of a Computerized Management System (OCTOMINE) for Aurora, Guyana Goldfields, to Effectively Manage Mining Operations Using Real-Time Data
Jerome Primo – Preliminary Determination of Grades in Mine Blocks Based on Petrology, Structures and Alteration: Aurora Gold Mines, Guyana
Jairaj Ramnarine – An Investigation of Potential for Tantalite in the Mushaiwautawa Mountain Area, Kuyuwini, by Soil Sampling and Geological Mapping
Dustin Roache – A Preliminary Environmental Assessment of Small Scale Gold Mining on Active and Inactive Mining Sites Within St Elizabeth Mining Area District Number 2
Alex Singh – Investigation of Mineralized Structures in the Rory's Knoll Mining Pit by Geological Mapping and Selective Representative Sampling
Geetendra Singh – Assessment of the Takutu Basin and its Hydrocarbon Potential
Ricky Singh – Initial Appraisal of Red Mud Tailings at Linden Alumina Plant for REE Potential
Rodwell St.Clair – Structural and Geological Mapping of Aurora Gold Mines' Mining Pit to Identify Areas of Low Integrity Area (Susceptible to Caving) Highly Likely to Produce Water
Gary Westford – An Assessment of the H-17 Mining Block

Students Visiting the Aurora Mine, April 2016

These Final Year Projects cost from about $G800,000 to $G2,000,000 each. Extensive support was provided by Guyana Goldfields Inc., Ed Hopkinson, Metallica Inc. and by the Guyana Geology and Mines Commission.

Students Overlooking the Main Karouni Gold Mine Pit, April 2016

Arranging outside support for these projects, ensuring they are appropriate and have suitable access to data and also sufficient field supervision is extraordinarily time consuming. Supervising the written results of the students' work as well as their presentations is demanding for all internal, Departmental supervisors.

Much of this work was the responsibility of Dr. Andrew Chater and Mr. Sherwood Lowe, both full-time staff. Mr. Emmet Alves, despite being part-time staff, volunteered his personal time to provide valuable Departmental supervision for the more mining-related Projects.

Major Student Activities (2) – Industrial Attachments

There were no students on Industrial Attachment during the year. The mineral industry is in a major cyclical recession at this time.

Major Student Activities (3) – Industrial Exposure and Professional Development

Along with the institution of a revised program of study leading to the new Associate of Science (Applied and Exploration Geology) qualification, the scope of the traditional "Industrial Attachments" was expanded. This was necessary because opportunities to gain work experience by taking a year's student employment in the mineral industry had become almost non-existent. Mineral exploration everywhere is suffering from a drastic reduction, directly tied to the current recessionary nature of the international commodities cycle.

The new program of Industrial Exposure and Professional Development (IEPD) allows students to amass a total of 50 work-equivalent days over the whole of the 4-year period of study to fulfil the "Industrial Attachment" requirements for a Bachelor of Engineering degree in Applied and Exploration Geology. Qualifying activities still include appropriate industry work with the mineral or oil industry but also now include professional development work such as

attending conferences, workshop, participation in industry or academically relevant societies or volunteering with government agencies such as the Guyana Geology and Mines Commission (GGMC).

In this regard, Guyana Goldfields very generously offered almost all the third year students, some 15 of them, opportunities to participate in many different work areas of its Aurora gold mine. Each student was at the mine for about, cumulatively, a 30-day work period during July and August. Additionally, approximately six first year students worked 2 days a week at the GGMC throughout much of June, July, and August and earned IEPD work-equivalent days there.

Major Student Activities (4) – Field Trips

Dr. Andrew Chater arranged and led two field trips for all third year students, one to the Karouni gold mine and the other to the Aurora gold mine. Troy Resources and Guyana Goldfields, respectively, both provided instructive mine tours and all students returned with knowledge that cannot be gained in the Department's University classrooms.

Mr. Lennox Tucker, likewise, arranged and led his third year Mineral Processing class on a tour of GGMC's mineral processing facilities at Linden. As part of this same trip, Bosai Mines kindly allowed access to its bauxite ore processing facilities at Linden providing the valuable learning experiences to students not available on campus.

Other Important Matters

***(1)** Disruption to Teaching Due to Reconstruction of Campus Facilities – It has been a difficult year for students and staff alike as noise, space availability, electrical disruptions, inaccessible equipment and rock samples and lack of secure spaces to store and easily access valuable instruments on campus have all contributed to a strained delivery of courses. Some portable equipment and some teaching rock and mineral samples have gone missing in the confusion of construction.*

(2) Implementing new programs in these circumstances has been difficult. Inevitable registration difficulties occur for students changing programs and new courses required more faculty work than established ones. Mr. Lowe, last Year's Head of Department, devoted an enormous amount of effort to revise the Applied and Exploration Geology program and its constituent course outlines and he continued to provide much help and guidance on its implementation.

(3) To add to these difficulties, the cessation of Mr. Evan Persaud's teaching services before his courses were complete diverted staff from fully attending to normal departmental activities. Two of Mr. Evan Persaud's courses had to be unexpectedly retaught in the simmer, one by Mr. Sherwood Lowe and the other by Dr. Andrew Chater.

(4) Of particular concern throughout the year was the lack of regular lab facilities to appropriately accommodate teaching the many additional lab courses in the new program.